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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: COMPOSITIONS, SPLICE VARIANTS AND METHODS RELATING TO CANCER SPECIFIC GENES AND PROTEINS

(57) Abstract: The present invention relates to newly identified nucleic acid molecules and polypeptides present in normal and neoplastic cells, including fragments, variants and derivatives of the nucleic acids and polypeptides. The present invention also relates to antibodies to the polypeptides of the invention, as well as agonists and antagonists of the polypeptides of the invention. The invention also relates to compositions containing the nucleic acid molecules, polypeptides, antibodies, agonists and antagonists of the invention and methods for the use of these compositions. These uses include identifying, diagnosing, monitoring, staging, imaging and treating breast, colon, lung, ovarian or prostate cancer and non-cancerous disease states in breast, colon, lung, ovarian or prostate, identifying breast, colon, lung, ovarian or prostate tissue, monitoring and identifying and/or designing agonists and antagonists of polypeptides of the invention. The uses also include gene therapy, production of transgenic animals and cells, and production of engineered normal or cancerous breast, colon, lung, ovarian or prostate tissue for treatment and research.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/11104

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12N 15/11

US CL : 536/23.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 536/23.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EST, Geneseq, GenEmbl, Issued_Patents, Published_Applications

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Database GenBank (GenEmbl); Accession No: AB027466; MANDA et al.; "Homo sapiens SPON2 mRNA for spondin 2"; 05 November 1999; having 100% sequence identity with SEQ ID NO:1, see sequence alignment.	1-10 and 15-17
X	Database GenBank (GenEmbl); Accession No: AX527926; HERRMANN et al.; "Sequence 11 from patent WO0229038"; 21 November 2002; having 100% sequence identity with SEQ ID NO:1, see sequence alignment.	1-10 and 15-17
X	Database GenBank (GenEmbl); Accession No: AX459649; ASHKENAZI et al.; "Sequence 3 from patent WO0216602"; 08 July 2002; having 97.6% sequence identity with SEQ ID NO:1, see sequence alignment.	1-10 and 15-17
X	Database GenBank (GenEmbl); Accession No: BD127273; OTA et al.; "Primer for synthesizing full-length cDNA and use thereof"; 18 September 2002; having 97.4% sequence identity with SEQ ID NO:1, see sequence alignment.	1-10 and 15-17



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

26 May 2005 (26.05.2005)

Date of mailing of the international search report

22 JUN 2005

Name and mailing address of the ISA/US

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/11104

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-10, 15-17 in part, and SEQ ID NO:1

Remark on Protest

☐
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/11104

BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Groups 1-141 (claims 1-10, 15-17 in part), all in part, drawn to an isolated nucleic acid molecule of SEQ ID NO X, vectors, host cells containing same, and the first method of using thereof, wherein X is any one of SEQ ID NOs: 1-141. For example,

If Group 1 is elected, this correlates to SEQ ID NO:1; if Group 141 is elected, this correlates to SEQ ID NO:141.

Groups 142-362 (claims 11-12, 15-17 in part, and 18), all in part, drawn to a polypeptide of SEQ ID NO Y, wherein Y is any one of SEQ ID NOs: 142-361. For example,

If Group 142 is elected, this correlates SEQ ID NO:142.

Groups 363-583 (claims 13 and 14), drawn to an antibody which binds to a protein with SEQ ID NO Y, wherein Y is any one of SEQ ID NOs: 142-361. For example,

If Group 363 is elected, this correlates to SEQ ID NO: 142.

The inventions listed as Groups 1-583 do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reason:

The polynucleotides and polypeptides of each invention are unrelated, each to each other. Mandaet al. disclose a polynucleotide sequence (GenBank Acc. # AB027466) that has a 100% sequence identity with the sequence of the instant SEQ ID NO:1. Such nucleic acid renders claim 1, among the other, not novel. Thus, the technical feature of the polynucleotide sequence is not special and the groups are not so linked under PCT Rule 13.1. Additionally the claimed methods produce different products and/or different results which are not coextensive and which do not share the same technical feature.

Furthermore, the claims are directed to different genes corresponding to SEQ ID NOs: 1-141. Each of these genes are separate entities which encode different proteins with different activities, binding reactions, antibody recognition, etc. and thus each has its own special technical feature.